Montana Board of Oil and Gas Conservation
Environmental Assessment

Operator: Noble Energy, Inc..
Well Name/Number: Sweet Pea 31-33
Location: NW NE Section 33 T1N R15E
County: Sweet Grass **, MT; Field (or Wildcat)** Wildcat

Air Quality

(possible concerns)
Long drilling time: No, 10 to 15 days drilling time.
Unusually deep drilling (high horsepower rig): No, shallow drilling with a double derrick drilling rig, 700 HP (Estimated). Will drill a vertical hole to 4,500' TD.
Possible H2S gas production: No, Cretaceous Cody Formation at total depth.
In/near Class I air quality area: No, Class I Air Quality Area .
Air quality permit for flaring/venting (if productive): Yes, DEQ air quality permit required under rule 75-2-211.

Mitigation:
X Air quality permit (AQB review)
__ Gas plants/pipelines available for sour gas
__ Special equipment/procedures requirements
__ Other:_____
Comments: No special concerns – using double derrick drilling rig, 700 HP (Estimated) to drill to 4,500' TD.

Water Quality

(possible concerns)
Salt/oil based mud: No, freshwater and freshwater mud system.
High water table: Yes possible high water table.
Surface drainage leads to live water: No, closest drainage is an unnamed ephemeral tributary to the Yellowstone River, about 1/8 of a mile to the east from this location.
Water well contamination: No, closest water wells are about 1/8 to 5/8 of a mile to the northwest and ¼ of a mile to the southwest of this location. Surface casing hole will be drilled with freshwater/freshwater drilling fluids. Steel surface casing will be run and cemented to surface from 1000'. Main hole will be drilled with freshwater and freshwater fluids to 4,500'. If production string will be run, production casing will be cemented from TD to surface.
Porous/permeable soils: Yes, sandy gravelly soils.
Class I stream drainage: Yes, in a Class I stream drainage area, Yellowstone River.

Mitigation:
__ Lined reserve pit
X Adequate surface casing
__ Berms/dykes, re-routed drainage
X Closed mud system
X Off-site disposal of solids/liquids (in approved facility)
__ Other: _____
Comments: 1000' of surface casing cemented to surface adequate to protect freshwater zones. Also, fresh water mud system to be used to drill surface hole and

mainhole. Production casing will be cemented. Closed loop mud system with offsite disposal of cutting and mud solids.

Soils/Vegetation/Land Use

(possible concerns)
Steam crossings: None anticipated.
High erosion potential: Yes, small cut required up to 3.6 and small fill, up to 2.9', required.
Loss of soil productivity: No, location will be restored after drilling, if nonproductive. If productive unused portion of drillsite will be reclaimed.
Unusually large wellsite: No, a large wellsite, 300'X350' location size required.
Damage to improvements: Slight, surface use appears to be a pivot irrigated hay field.
Conflict with existing land use/values: Slight

Mitigation
__ Avoid improvements (topographic tolerance)
__ Exception location requested
X Stockpile topsoil
__ Stream Crossing Permit (other agency review)
X Reclaim unused part of wellsite if productive
__ Special construction methods to enhance reclamation
__ Other _____

Comments: Access will be over existing county road, Highway #10. A short access road will be constructed into this location off the existing county road, about 903'. Cuttings will be disposed of off site in an approved disposal facility. Drilling fluids will be recycled and or disposed of in at an approved site. No special concerns.

Health Hazards/Noise

(possible concerns)
Proximity to public facilities/residences: Closest residences about 1/4 of a mile to the northwest and 1/4 miles to the southwest from this location. The town of Big Timber, Montana is about 4.5 miles to the northwest from this location.
Possibility of H2S: None, Cretaceous Cody Formation at total depth.
Size of rig/length of drilling time: Double derrick drilling rig/short amount of drilling time, estimate 10 to 15 days drilling time.

Mitigation:
X Proper BOP equipment
__ Topographic sound barriers
__ H2S contingency and/or evacuation plan
__ Special equipment/procedures requirements
__ Other:_____

Comments: Operational BOP and adequate surface casing should mitigate any problems. Formations to be drilled are characteristically non H2S bearing. Distance to residences sufficient not to create a noise problem. No concerns.

Wildlife/recreation

(possible concerns)
Proximity to sensitive wildlife areas (DFWP identified): None identified.

Proximity to recreation sites: Yellowstone River about 1 mile to the east from this location.
Creation of new access to wildlife habitat: No, all surface access is private irrigated hay land.
Conflict with game range/refuge management: None. No game range/refuge nearby.
Threatened or endangered Species: Canada Lynx, Black-footed Ferret, Gray Wolf (Listed in Sweet Grass County by US Fish & Wildlife website) and Species of Concern Greater Sage Grouse (Not an issue with MT FWP, Justin Paugh).

Mitigation:
__ Avoidance (topographic tolerance/exception)
__ Other agency review (DFWP, federal agencies, DSL)
__ Screening/fencing of pits, drillsite
__ Other: _____

Comments: No concerns. Private surface lands. Public access, recreation and hunting issues are controlled by the private land owner. Surface use is an irrigated hay field, with surrounding private ranches. Garbage will be stored in caged trailers and removed on a regular schedule.

Historical/Cultural/Paleontological

(possible concerns)
Proximity to known sites: None identified.

Mitigation
__ avoidance (topographic tolerance, location exception)
__ other agency review (SHPO, DSL, federal agencies)
__ Other:_____

Comments: No concerns. On private land, irrigated hay field.

Social/Economic

(possible concerns)
__ Substantial effect on tax base
__ Create demand for new governmental services
__ Population increase or relocation

Comments: No concerns, wildcat exploratory well. Until production is established it is unknown what the economic impact will be on tax base, governmental services and population. If well is a dry hole no impact.

Remarks or Special Concerns for this site

Well is a wildcat exploratory test to be drilled to 4,500' total depth into the Cretaceous Cody Formation on the south side of the Crazy Mountains.

Summary: Evaluation of Impacts and Cumulative effects

No significant impacts or cumulative effects are expected from the drilling of this test well. No long term impacts expected, since the drilling of this well would take a maximum of 15 days and the completion and testing phase if productive another 30 days. Some short term impacts will occur, but can be mitigated in a short time.

I conclude that the approval of the subject Notice of Intent to Drill (does/**does not**) constitute a major action of state government significantly affecting the quality of the human environment, and (does/**does not**) require the preparation of an environmental impact statement.

Prepared by (BOGC): /s/Steven Sasaki
(title:) Chief Field Inspector
Date: August 9, 2010

Other Persons Contacted:

Montana Bureau of Mines and Geology, Groundwater Information Center
(Name and Agency)
Sweet Grass County water wells.
(subject discussed)
July 21, 2010
(date)

US Fish and Wildlife, Region 6 website
(Name and Agency)
ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES MONTANA COUNTIES, Sweet Grass County
(subject discussed)

July 21, 2010
(date)

Mr. Justin Paugh, Montana FWP
(Name and Agency)
Greater Sage Grouse Leks in Sweet Grass County, Montana
(subject discussed)

August 9, 2010
(date)

If location was inspected before permit approval:
Inspection date:
Inspector: _____
Others present during inspection: ____ _____